



»»» The challenge of climate change.
How KfW Development Bank
contributes to achieving the
climate goals.

Supporting the transition. Making the economies of developing countries resistant to climate change.

Climate change is among the greatest challenges currently facing humanity. As an international promotional bank, KfW takes responsibility – and takes action.

Even though a substantial portion of the effects of climate change still lies ahead of us, we are already starting to feel the changes all over the world: Droughts, floods, heat waves. Developing countries are the most hard-hit by these effects, even though these nations have contributed least to climate change up to now. So, we need to take swift and definitive countermeasures in all areas of life. Organising development in a manner that is climate-friendly is not just a matter of responsibility and equity – it also makes sense economically.

In August 2021 the Intergovernmental Panel on Climate Change (IPCC) reminded us once more about what will happen if we do not act. If the temperature “only” rises by 1.5 degrees, the effects will already be drastic: heat waves would become the norm; the coral reefs would recede by 70 to 90 %, thus causing dramatic losses in fish stocks, which in turn would influence food availability. At present, however, we are heading for up to three or four degrees Celsius by the end of the century. Meanwhile, man-made global warming is already one degree Celsius above pre-industrial levels.

“Business as usual” is no longer an option. It has become even more important that we restructure our national economies as quickly as possible to make them sustainable: This includes taking measures like replacing fossil fuels and generally reducing emissions of climate-damaging greenhouse gases as well as resource consumption. The Paris Agreement and the United Nations’ 17 Sustainable Development Goals (SDGs) make up the universal framework for these changes – unlike the previous Kyoto-Protocol and the Millennium Development Goals – now uniting all countries on Earth as equals. Over the next few years,



10 billion
people could live on
Earth by the middle of
the 21st century



4.8 tonnes
of CO₂ are emitted
annually per capita
throughout the world

it is imperative that the world implements both agreements and closes the gap between knowledge and action. As an international promotional bank, KfW is committed to these aspirations. We view ourselves as progressive thinkers and as a catalyst for positive change. In this respect, we act on behalf of the German Federal Government, in particular the Federal Ministry for Economic Cooperation and Development (BMZ).

In addition to our domestic programmes, KfW helps (poorer) countries all over the world to transform their social and economic systems in ways that are climate-friendly and to exploit and tap into their great potential which results from those changes. This means, on the one hand, generating economic growth in ways that facilitate more goods and services being produced without detrimental effects on the climate, while striving for a “Green Recovery” after the Covid-19 pandemic. On the other hand, it also means actively adjusting to higher global temperatures and softening their impacts.

KfW’s strengths in this process are threefold:

- our expertise in financial markets that need to become greener (see “Investing in climate change mitigation” section)
- our ability to organise progress in ways that are environmentally safe (see “Driving climate-friendly development” section)
- our experience converting energy systems (see “Designing the energy turnaround” section)

Nobel Peace Prize laureate Al Gore once very aptly said: “We need to stop financing denial of climate change” – and focus consistently on sustainability. This is precisely KfW’s concern.



„The right direction“

Christiane Laibach, KfW Executive Board member, on climate change and its importance for KfW Development Bank.

You once said that you felt strongly about the issues of climate and sustainability. Why is that?

Climate and sustainability are major global issues that will have a decisive impact on our lives today and in the coming years and decades. This applies to us as individuals, to societies, but also to KfW, which sees itself as a climate and sustainability bank as it actively supports and promotes this change.

The resolutions on how to shape this change have been around for a while, with the keyword being the Paris Climate Agreement, but in many countries, there is a lack of implementation. Is there more movement now?

In my opinion, the issue has once again become the focus of attention over the past twelve months. This is exemplified by the

European Union's Green Deal or President Biden's climate action programme. We also see it in companies that are taking the issue seriously and looking for solutions for environmentally-friendly business and climate-friendly technologies.

Many young people in particular do not believe that progress is happening quickly enough. How would you respond to them?

First of all, I would tell them that I welcome their social engagement because they have brought a new dynamic to it. The reason why things are not going any faster is, in my opinion, the following: we are facing a transformation that is very demanding, challenging and complex. It requires a successful interplay of policy, general conditions, regulations, the right incentives and sufficient funds. We also still need to make technical progress, for example in air and sea transport. We are on the right track, but there is still a lot of work ahead of us.

How seriously do developing countries and emerging economies take climate action?

The awareness is there. And, for example, we are seeing a clear shift towards renewable energies almost everywhere in the world. The lower costs of wind or solar energy, for example, facilitate the spread of sustainable technologies. This means that the direction is clear, they have started on the path. But fundamentally, poorer regions of the world have to deal with many challenges, currently with the consequences of COVID-19 in particular. This means that climate action requires an even greater effort on their part. It is all the more important that they receive international support in this.

... and that climate action is cushioned by social programmes?

With every transformation, there are also losers. If we want to successfully shape this change, we have to take them with us. This is even more essential in developing countries because the economic situation is precarious for even more people. Social protection and employment programmes, for example, help here. KfW supports both.

What is KfW Group doing to advance climate action?

We have imposed a so-called transformation programme on ourselves, in which we are gearing all our financing towards supporting the transformation of our partners and making KfW climate neutral by 2050. KfW Development Bank has been financing climate action and adaptation in a targeted manner since around 2008 – with sharply increasing funds, which now amount to more than four billion euros annually. This corresponds to a good half of our commitments. For the other half, we make sure that they do not harm the climate. We are also one of the largest issuers of green bonds and are constantly working on new innovative approaches to promote green capital markets, including in developing countries. With LAGREEN we have already been able to implement a first lighthouse project in Latin America.

Do you think it is feasible to get to net zero emissions by 2050?

I would put it the other way round and say: we will certainly only make it if we go to extreme efforts in the next five to ten years – and that as a whole, all over the world. In this respect, the next few years will be crucial.

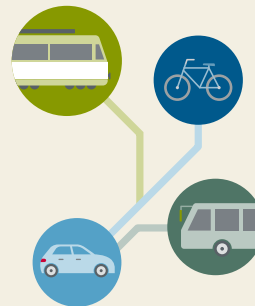
Climate change mitigation comes at a cost. KfW provides funding.

Stopping global warming and alleviating its most severe effects is a global challenge. It affects virtually every area of life, requires fundamental changes in thinking and creates high costs. As a result, KfW has already significantly increased its international commitment – and is staying on the ball.

Mobility

The transport sector is responsible for approximately one quarter of global carbon emissions.

42 km: the length of a new metro system KfW is co-financing in the Indian city of Nagpur. About two thirds of the power for the train is generated by photovoltaic systems.



Green financing

According to estimates, around USD 2.4 trillion is needed per year in the energy sector alone to achieve the international climate targets.

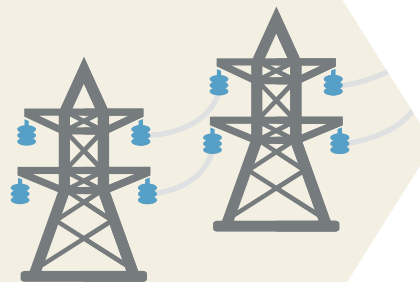
EUR 37.7 billion is the sum of new green bonds issued by KfW to date, making KfW the largest issuer in the world.



Grids and storage

New infrastructure is needed in order to guarantee supply security and integrate use of renewable energy sources.

EUR 1.4 billion is the amount KfW is contributing for the “green corridors” in India, for example. New grids and storage integrate electricity from renewable energy sources.



Biodiversity

Forests, peatlands and soils are natural carbon sinks that make an effective contribution to the reduction of carbon dioxide in the atmosphere. Therefore, it is crucial for climate protection to preserve and restore as many natural areas as possible.

With **around EUR 3.5 billion**, KfW promotes biodiversity in protected areas, but also beyond, for example in agriculture or fisheries. 95 % of these projects are relevant to climate protection.

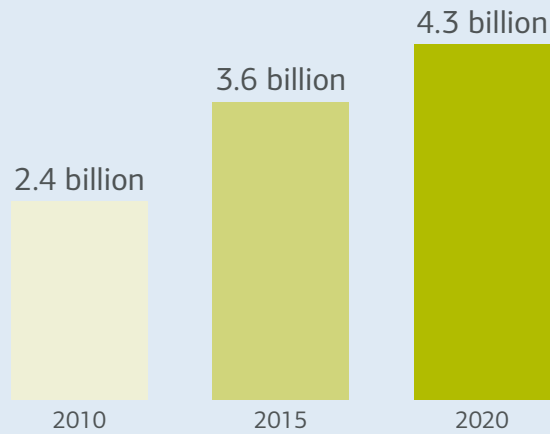


High time to act on climate change

If we do not drastically reduce carbon emissions, the global temperature will increase by up to four degrees by the end of the century. The international community is striving to limit the increase to 1.5 degrees – and even then, the effects will be severe.

KfW Development Bank investments in climate projects*

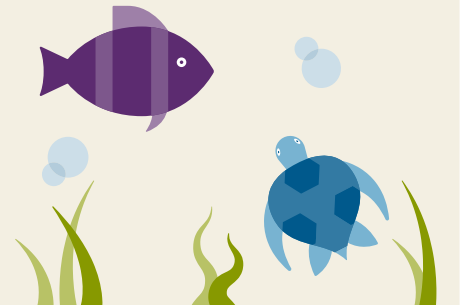
In Euro



Marine conservation

The world's oceans are the largest carbon sinks and generate around half of our oxygen.

EUR 2 billion is the sum that KfW has earmarked together with the French development agency AFD and the EIB in the next five years within the scope of the Clean Oceans Initiative for marine conservation.



Forest conservation

Over 20% of global carbon emissions can be attributed to deforestation.

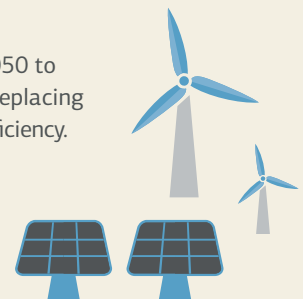
24 million cars: KfW has already conserved as much CO₂ as these cars emit in a year with special compensation programmes for forest conservation.



Renewables & energy efficiency

The plan is to reduce carbon emissions to zero in net terms by 2050 to prevent the worst effects of climate change. This means rapidly replacing fossil fuels with renewable energy sources and enhancing energy efficiency.

EUR 2.7 billion were committed to renewable energy sources and energy efficiency by KfW Development Bank in 2019 alone. This corresponds to 31 % of the total portfolio.



Agriculture

By 2050 the global population will grow to around 10 billion people. Food production will have to increase by 60% in order to support this.

More **than EUR 800 million** was the amount that KfW used to support farmers in developing countries over the last five years so that they could adjust their production methods to climate change – and continue producing enough food for themselves and others.



* Financed by KfW Development Bank on behalf of and using budget funds from the Federal Government, mainly the Federal Ministry for Economic Cooperation and Development (BMZ), and other donors including the Green Climate Fund.

Investing in climate change mitigation. KfW is changing the financial markets with new, green products.

The financial sector needs to become greener so that investments increase in environmentally and climate-friendly technologies and decrease in backward-oriented solutions. KfW promotes this process by consistently developing and applying innovative financial products.

Eine zentrale Aufgabe der nächsten Jahre lautet: die Wirtschaft One central task over the next few years is: transforming the economy as quickly as possible. This applies to power generation and facility construction, to mobility and agriculture – to nearly every area of life. It will require major investments in green technologies. For the energy sector alone, some USD 2.4 trillion will be needed each year according to estimates by the Intergovernmental Panel on Climate Change. Other sources have presumed in more general terms that we have to go from “billions to trillions”, meaning the need to mobilise enormous sums to achieve the UN Sustainable Development Goals.

Expanding green instruments

This process is already under way. All promotional and development banks have now created climate portfolios. This also applies to KfW Development Bank, which has increased its investments in this area most recently to EUR 4.3 billion. In 2010 the sum was around EUR 2.4 billion.

In addition to direct investments in green infrastructure like renewable energy sources or public transport, it is also necessary to expand the range of green instruments so the scarce public resources can have the greatest possible effect. This includes, among the more traditional products with which KfW has a lot of experience, credit lines that can be used to create incentives for purposes such as energy-efficient construction. But it also includes funds like the eco.Business Fund in Latin America, which supports green business practices. It promotes companies that use sustainable methods to make their products, for example in forestry, coffee farming, or within the scope of sustainable tourism.

The fund has become so successful in Latin America that it is currently opening an additional branch in Africa. Acting on behalf of the BMZ, KfW is also one of the founders of the Caribbean Biodiversity Fund (CBF), which promotes conservation in the Caribbean, a region particularly hard-hit by climate change.

In addition, KfW is a forerunner in insurance schemes as they are now available in Africa or in small island nations in the Pacific.

For example, these insurances can help nations affected by extreme weather events to quickly access funds after a catastrophe and thus limit economic damages or accelerate the rebuilding process.

KfW was among the initiators of the African Risk Capacity (ARC), which helps African Union member countries and humanitarian actors in Africa hedge against the effects of droughts and tropical cyclones. The intention is to lessen African countries' vulnerability to climate risks.

Mobilising private capital

KfW also does an innovative job in the field of green bonds, playing a dual role as an issuer and an investor. These are bonds with revenues used for climate change mitigation and environmental protection projects. They help to mobilise private capital, making it possible to finance an increasing portion of the necessary climate investments. They are still niche products, but the market is growing: since 2015, annual new issues have increased more than sixfold. In 2020, they amounted to EUR 205 billion. KfW has issued green bonds of more than EUR 37 billion to date, making it one of the largest issuers in the market worldwide. The ability to combine investments in sustainability and climate change mitigation with



+0,2° C
is the current rate of
global warming per
decade as a result of
climate change.



30 million hectares
of forest area are cleared globally
every year according to the NGO
Global Forest Watch

the liquidity and security of KfW bonds is being very well received. Furthermore, KfW has already invested EUR 2 billion in green bonds from other market participants as part of its own green bond portfolio.

The fact that financial markets are on the move is also shown by diverse associations and committees like the International Deve-

lopment Finance Club (IDFC). 26 development banks have since joined this club, including KfW. The members share the vision of a sustainable future while simultaneously reducing poverty. Together they dedicated around USD 867 billion for green financing between 2015 and 2019.

KfW is committed to making financial markets greener in two ways: as a promotional bank that supports green projects throughout the world, and as a financial institution that has put itself on a clear course towards sustainability in its own banking operations. In light of the enormous sums that need to be raised to overcome global warming, the issue is at the very top of KfW's agenda.



KfW invests in sustainable agriculture – coffee farming, for instance.



Thinking further ahead: Making sustainability a strategic focus of KfW

In future, KfW will focus on sustainability even more consistently than it has in the past. With the group-wide project "tranSForm" in the area of sustainable finance, KfW has initiated trend-setting changes that focus on the contribution of financing to a sustainable and climate-friendly transformation of the economy and society. In this way, KfW is moving itself forward, but can also act as an opinion-forming and shaping financial institution. As a promotional bank, KfW sees its mandate as driving the transformation to a more climate-friendly world and continuously developing its own promotional products, standards and processes to this end. For example, in 2020 it co-initiated the Latin American Green Bond Fund, LAGREEN, which enables countries in Latin America to issue green bonds for the first time.

»»» Driving climate-friendly development. KfW reconciles ecological, economic and social objectives.

Whether air, water, or land, and whether food, raw materials or biodiversity – humanity is straining the Earth’s capacity to its limits, and beyond. It is all the more important that we make development progress in environmentally and climate-friendly ways. This is KfW’s commitment.

The numbers are alarming: one million species threatened by extinction, annually 8 million tonnes of additional plastic waste in the world’s oceans, deforestation covering areas as large as South Korea every year, 80% of wastewater is untreated, numerous cities suffer from bad air quality. Meanwhile, the sea level is rising, and extreme weather events are on the rise due to global warming.

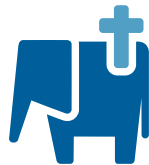
At the same time, almost one in every ten people still lives in extreme poverty, and the Corona pandemic has exacerbated the situation. Consumption requirements and pent-up demand are considerable in many areas of the world. This increases the pressure on natural resources. Especially because the world population continues to increase: there will probably be around 10 billion people on Earth by 2050.

Reconciling economies with environmental protection and climate change mitigation

It will not be possible to meet the increasing demand for food, water, goods, places to live and mobility with previous models without destroying existing ecosystems. So, the only remaining solution is to reconcile economies with environmental protection and climate change mitigation. This combination was also codified in the United Nations’ Sustainable Development Goals (SDGs) from 2015 and provides a clear framework for all activities under German development cooperation and hence for KfW Development Bank.

So, for example, forest conservation is a matter of particular importance for KfW. Deforestation is one of the largest sources of greenhouse gases at 20%. Forest area equivalent to the size of a football pitch is destroyed every four seconds. So, it plays a key role in nature protection and climate change mitigation. For

it has long been clear that we are currently dealing with a triple crisis, in which global warming, the destruction of ecosystems and the danger of pandemics are inextricably linked and must therefore also be tackled together. KfW is taking countermeasures, for example in the form of reforestation programmes like the ones in Madagascar or Vietnam. But these programmes do more than just plant trees; they also help to restore entire forest landscapes. Reforesting deforested areas is supplemented with agriculture and management of existing forests. Agroforestry systems used for things like cocoa or coffee farming play a special role here.



1 million
animal and plant species
are threatened by
extinction worldwide.

Additionally, KfW supports compensation programmes that reward forest preservation. The local population receives funds if they reduce deforestation and thus protect the climate. This is an approach KfW has been using for example in Ecuador and Colombia.

KfW is also concerned with protecting the world’s oceans. For that reason, KfW founded on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) a fund for international marine conservation: the Blue Action Fund (BAF), which promotes new conservation

areas, sustainable fishing and alternative livelihoods, such as environmentally friendly tourism. KfW has also launched the Clean Oceans Initiative to take the fight against marine litter seriously. Together with other European promotional institutions, COI is helping to prevent waste, especially plastic waste, from entering the oceans in the first place: for example, by building sewage treatment plants and waste dumps or by introducing recycling systems.

Dealing with the effects of climate change

Reducing emissions of climate-damaging gasses or sequestering them in forests and oceans, as well as preserving ecosystems



Around **8 million** tonnes of additional plastic waste end up in the world's oceans every year.



Climate change is threatening the habitats of many animal and plant species (above), but also natural reservoirs like these glaciers in Peru (left).

is important but is not enough. Because today, we already know that the Earth's temperature will rise despite all efforts, which will have far-reaching effects, primarily on many developing countries: whether droughts or floods, heavy rains or record temperatures, poor countries are the ones most affected by climate change – and they rely on international support.

Thus, KfW is also promoting adjustment measures all over the world, for example in Peru. The glaciers in these high mountain regions function as the service reservoir for the majority of the Peruvian population, which primarily lives in dry coastal regions. The problem is that these glaciers are already melting at drastic rates. For this reason, KfW is helping local suppliers to use water more efficiently so that they will also be able to manage the supply in the age of climate change. On the other hand, KfW promotes coastal preservation with walls, embankments, and erosion protection plantings in Tunisia so the country does not lose land to rising sea levels.

Those are just a few of many measures. One thing is clear: organising progress in a way that is climate-friendly is one of KfW's overarching objectives – and is thus also one of the main issues its mission will focus on in the years and decades to come.



Thinking further ahead: Protecting landscapes – together with international partners

The loss of biodiversity has taken on dramatic proportions: Species extinction is now occurring 100 times faster than without human intervention. This trend must be reversed, also as a means of climate protection. Well-managed protected areas are the best way to do this if they closely involve the local population. KfW founded the Legacy Landscapes Fund (LLF) on behalf of the German government for precisely this purpose. It finances protected areas and their surrounding areas in poor countries. The idea behind the LLF is as simple as it is compelling: if we succeed in preserving as many species as possible in biodiversity-rich but low-income areas of the world, then a good part of the biodiversity that is essential for survival will be safeguarded for the whole world - and thus also for the climate and adaptation. What is special about the LLF is that private donors are also involved, so that the LLF can help close the large funding gap in nature and climate protection.

»»» Designing the energy turnaround. KfW acts as a driver of the transformation – as a financier of renewables.

The world is in a state of upheaval: Apart from digitalisation, the transition to sustainable forms of energy and the elimination of the combustion engine are probably the greatest watersheds since the Industrial Revolution. This is changing economic systems, supply chains, jobs and people's lifestyles. KfW actively supports this transition, always keeping its eye on the next steps.

Almost every human activity today needs energy: whether in schools or hospitals, companies or shops, for lighting, cooling or heating and for digital networks – energy has become an essential part of our lives. This applies to wealthier developed countries in any case, but this also increasingly holds true for poorer nations that can only drive their economic development with more energy.

To ensure that global temperatures do not rise to an uncontrollable level, growing energy demands thus need to be covered with climate-friendly sources: Wind, solar, hydro, geothermal, or biomass. So nearly all countries in the world have set concrete targets for expanding renewable energy sources within the scope of the Paris Agreement. And developing countries, in particular, have a rich potential for this development. The African continent, for instance, has enormous potential to use solar, wind, hydro and geothermal power, but has only tapped into a fraction of this potential to date.

The world is energised – from Brazil to Morocco to Indonesia

However, because initial investments in energy infrastructure are very high, developing countries in particular need support when introducing or transitioning to renewable energy sources. As a promotional bank, KfW is driving this transition at a global level and has committed more than EUR 5 billion in renewable power generation alone over the past five years.

One example is the largest solar power plant in Africa, which is currently being built in the Moroccan city of Ouarzazate and is already producing green electricity for 400,000 people. When the

entire complex is completed one day, the amount of power will triple again and will then meet the needs of more than 1.3 million people. But KfW is also promoting solar energy in Brazil and El Salvador; wind farms have been built in Egypt and in Bosnia-Herzegovina, and geothermal plants have been established in Kenya and Indonesia. And those are just a few examples from KfW Development Bank's extensive portfolio in the energy sector.



40 %
fewer greenhouse
gas emissions is the
reduction EU countries
want to make by 2030.
(Reference year: 1990).

However, the energy supply from renewable sources fluctuates, because the wind does not always blow and the sun does not always shine with the same intensity. And power can often not be generated where it is needed most. So suitable storage and grids are needed at the same time to help supply electricity in the necessary amount and quality, at the desired location and at the right time. KfW also participates in expanding and modernising grid infrastructure and manage-

ment, for example in India, where it co-finances so-called "green corridors" that transport sustainable electricity to the economic centres of the country. These and other investments in energy systems, such as substations in Ukraine or municipal distribution grids in Vietnam, have added up to almost three billion euros in the last five years.

Energy efficiency as the key

Energy that is not consumed in the first place cannot damage the climate. Hence why energy efficiency is a highly relevant topic. The International Energy Agency (IEA) views it as one of the most underestimated resources, and designates energy efficiency as the world's "first fuel". Energy can be used more wisely nearly everywhere in the world: the potential for increa-



21 trillion kWh

is the amount of energy consumed worldwide per year according to estimates.



To date, KfW has provided loans of around EUR 200 million to the EcoCasa programme on behalf of the BMZ. This is used to build eco-homes for poorer families - like this housing area in Mexico.

KfW Development Bank invests in the expansion of renewable energy sources at a global level – e.g. at this wind farm in Egypt.



Energy efficiency in developed countries is estimated at 20%. In developing countries and emerging economies, the potential savings are estimated at up to 85% due to the higher energy intensity depending on the sector and stage of development.

Similar to the situation in Germany where KfW's efficiency programmes have set standards adopted by the entire real estate market, KfW also promotes more efficient use of energy abroad: In buildings, power plants and grids. In Montenegro, for example, with a programme called "Greening Public Infrastructure", it is not only investing in significantly increased energy efficiency in public buildings, but also in more comfortable and modern energy control via "smart meters", which has a positive impact on climate protection.

KfW has been one of the largest financiers in the area of renewable energy sources and energy efficiency around the world for many years. And in doing so, it does more than simply invest large sums: KfW also develops ideas, concepts and approaches, and actually realises them together with its partners and usually on behalf of the German Federal Government.



Thinking further ahead: Climate-friendly mobility of the future

The energy turnaround is expanding: in addition to electricity generation through renewable energies for industry and private households, energy will increasingly play a role in the future through applications in district heating and e-mobility. Furthermore, power-to-x technologies are gaining in importance in order to convert electricity generated from wind or solar energy into other energy sources and to use them. The traffic turnaround is happening alongside the energy turnaround, or rather, both of them are connected: so KfW promotes environmentally friendly electric mass transportation like underground and overground trains, for example in Brazil, Tunisia or India. For KfW, the creation of sustainable, fully-coordinated mobility systems is one of the most urgent tasks in the years to come and a part of targeted urban planning. A task which will gain importance within KfW's commitment to advancing the mobility of the future.

Responsible banking

KfW is one of the world's leading promotional banks. On behalf of the Federal Republic and the federal states of Germany, it applies its decades of experience to improving economic, social and ecological living conditions at home and abroad.

In addition to KfW Development Bank, the two Group subsidiaries DEG and KfW IPEX-Bank are active in KfW Group's international business. While KfW Development Bank as the implementing organisation of the German Government's Financial Cooperation, supports projects and programmes involving mainly public actors in developing countries and emerging economies, DEG provides financing and consulting to private companies investing there. KfW IPEX-Bank supports the German and European economy in the field of project and export finance.

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about KfW's contribution to
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